Amendments to the Drawings

The attached replacement sheets of drawings includes changes to Figures 2 and 3, and replace the original sheets including Figures 2 and 3.

In Figure 2, the numbering of the amino acid sequence has been corrected to reflect that there are 518 amino acids in the sequence.

In Figure 3, the reference to Figures 3A, 3B, and 3C is removed.

Attachments following last page of this Amendment:

Replacement Sheets (5 pages)
Annotated Sheets Showing Change(s) (5 pages)

REMARKS

Claims 11-13, 16, 18-21, 23, 25, 27, 36, 39, 40, 44-47, and 50-54 were pending, and claims 29, 30, 32, 42, 43, 48, and 49 stand withdrawn. Pending claims 11-13, 16, 19, 21, 23, 25, 27, 39, 40, 44, 46, 47, and 50, as well as withdrawn claims 29, 42, and 48, are amended herein. Claims 20 and 36 are cancelled without prejudice, and new claims 55-59 are added. Thus, claims 11-13, 16, 18, 19, 23, 25, 27, 39, 40, 44-47, and 50-59 will be pending upon entry of this communication.

Claims 11-13, 16, 19, 21, 23, 25, 27, 36, 39, 40, 44, 46, and 47 are amended to remove reference to non-elected SEQ ID NO:11. Claim 20 is cancelled in light of these amendments. Withdrawn claims 29, 42, and 48 also are amended to remove the recitation of SEQ ID NO:11.

Claim 13 is amended to recite that the cDNA molecule encodes at least 500 contiguous amino acids of a protein encoded by a polynucleotide comprising the sequence of SEQ ID NO:1. Claims 44 and 46, which depend from claim 13, are amended to recite that the cDNA encodes at least 550 contiguous amino acids or at least 600 contiguous amino acids, respectively, of a protein encoded by a polynucleotide comprising SEQ ID NO:1. Support for these amendments can be found in Applicants' specification at, for example, the paragraph extending from page 10, line 20 to page 11, line 23, which discloses that a polypeptide can contain, *inter alia*, at least 500, 550, or 600 contiguous amino acids encoded by a polynucleotide comprising SEQ ID NO:1.

Claim 16 is amended herein to recite that the cDNA molecule comprises a polynucleotide that is at least 1450, at least 1500, at least 1550, or at least 1600 contiguous nucleotides of SEQ ID NO:1. Claims 19, 27, and 39 are amended in an analogous manner. In addition, claim 36 is amended herein to recite a set of primers for amplifying at least 1450 contiguous nucleotides of SEQ ID NO:1. Support for these amendments can be found in Applicants' specification at, for example, the paragraph extending from page 16, line 25 to page 18, line 1, which discloses that a polynucleotide can contain, *inter alia*, at least 1450, 1500, 1550, or 1600 contiguous nucleotides of SEQ ID NO:1.

In addition to the above amendments, claim 19 is amended to remove the term "subgenomic," and claim 25 is amended to remove the phrases "of a gene" and "of the gene." Claim 27 is amended to further clarify the claim language by reorganizing the claim, to recite a

polynucleotide probe comprising a polynucleotide selected from (a), (b), (c), and (d), and further comprising a detectable label. Claim 50 is amended to depend from claim 11.

Further, new claims 55-59 are added herein. Claims 55-59 recite isolated nucleic acid molecules which is at least 85% identical, at least 90% identical, at least 95% identical, or at least 99% identical to a polynucleotide comprising SEQ ID NO:1, or which is SEQ ID NO:1, wherein the polynucleotide is expressed at a higher level in metastatic breast cancer tissue relative to non-metastatic breast cancer tissue. Support for claims 55-59 can be found in present claims 11, 12, and 47. Support also can be found in Applicants' specification at, for example, the paragraph extending from page 18, line 25 to page 19, line 1, which discloses that a nucleotide sequence can be, *inter alia*, at least 85%, 90%, 95%, or 99% identical to the nucleotide sequence shown in SEQ ID NO:1.

The paragraph beginning at page 1, line 1 of the specification is amended herein to remove the claim of priority to a second provisional application. In addition, the paragraphs beginning at page 5, line 29 and page 6, line 8 of the specification are amended to add sequence identifiers for the sequences shown in Figures 2 and 3.

Finally, Figures 2A and 3 are amended herein. Figure 2A is amended to show the correct numbering for the amino acid sequence depicted therein. Figure 3 is amended to remove the reference to parts A, B, and C.

No new matter has been added by the amendments presented herein. In light of these amendments and the following remarks, Applicants respectfully request reconsideration and allowance of claims 11-13, 16, 18, 19, 23, 25, 27, 36, 39, 40, 44-47, and 50-57.

Objections to the Specification

The Office objected to the specification for not discussing Figures 3A, 3B, and 3C separately. The Office also objected to the specification for containing a blank at page 1, line 3. In addition, the Office objected to the specification as allegedly not being in compliance with the Sequence Rules (37 C.F.R. §§ 1.821-1.825), because sequences appear without sequence identifiers in Figures 2 and 3.

Applicants have amended Figure 3 to remove the labels 3A, 3B, and 3C. Applicants have removed the priority claim to the second provisional application at page 1 of the specification.

In addition, Applicants have amended the description of Figures 2 and 3 at pages 5 and 6 of the specification to include sequence identifiers. Thus, the application is in compliance with 37 C.F.R. §§ 1.821-1.825.

In light of the above, Applicants respectfully request withdrawal of the objections to the specification.

Rejections under 35 U.S.C. § 112

Claim 25 stands rejected under 35 U.S.C. § 112, first paragraph, as allegedly failing to comply with the written description requirement. In particular, the Office asserted that the specification does not adequately describe the gene recited in claim 25. Citing several Federal Circuit rulings, the Office stated that "an adequate written description of a DNA requires . . . a description of the DNA itself."

Applicants respectfully disagree. Previous claim 25 was fully described. To further prosecution, however, Applicants have amended claim 25 to remove the recitation of "a gene." Thus, this rejection is moot.

In view of the above, Applicants respectfully request withdrawal of the rejection of claim 25 under 35 U.S.C. § 112, first paragraph.

Claims 11-13, 16, 18-21, 23, 25, 27, 36, 39, 40, 44-47, and 50-54 stand rejected under 35 U.S.C. § 112, second paragraph, as allegedly being "vague, indefinite, and incomplete." The Office asserted that since claims 11-13, 16, 19, 21, 23, 25, 27, 36, 39, 40, 44-47, and 50-54 recite SEQ ID NO:11, they claim more than was elected. The Office also asserted that the recitation of "subgenomic polynucleotide" in claims 19 and 20 and the recitation of "a gene" in claim 25 is indefinite because the terms are not defined and have no clear art-recognized meaning. In addition, the Office asserted that the recitation of "detectable label" in claim 27 is indefinite because the specification does not distinguish a detectable label from an undetectable label. Finally, the Office rejected claim 50 as being incomplete for depending from cancelled claim 1.

Claims 11-13, 16, 19, 21, 23, 25, 27, 36, 39, 40, 44, 46, and 47 are amended herein to remove reference to non-elected SEQ ID NO:11. In addition, claim 50 is amended to depend

from claim 11. Thus, the rejection of claims 11-13, 16, 23, 36, 39, 40, 44-47, and 50-54 under 35 U.S.C. § 112, second paragraph, is moot.

Applicants disagree with the assertion that the phrase "subgenomic polynucleotide" is not defined. Page 16, lines 25-28 of the specification discloses that subgenomic polynucleotides contain less than a whole chromosome, and preferably are intron-free. Applicants also disagree with the assertion that the term "a gene" does not have a clear art-recognized meaning. A skilled artisan would certainly understand what is meant by "a gene." Notwithstanding the foregoing and solely in an attempt to further prosecution, however, Applicants have removed the term "subgenomic" from claim 19 and removed the phrase "a gene" from claim 25. Thus, the rejection of claims 19 and 25 under 35 U.S.C. § 112, second paragraph, is moot.

Applicants further disagree with the assertion that the phrase "detectable label" in claim 27 is indefinite. A person of skill in the art certainly would understand that a detectable label can be added to a probe, as recited in claim 27, to allow the presence of the probe to be sensed and, in some cases, quantified. Further, the paragraph beginning at page 21, line 5 of Applicants' specification discloses that a polynucleotide probe can have a detectable label, such as a radioisotopic, fluorescent, enzymatic, or chemiluminescent label. Thus, the phrase "detectable label" is abundantly clear and definite. To further prosecution, claim 27 has been revised to clarify that the polynucleotide probe comprises a polynucleotide selected from the group consisting of (a) through (d), and further comprises a detectable label.

In light of the above, Applicants request withdrawal of the rejection of claims 11-13, 16, 18, 19, 23, 25, 27, 36, 39, 40, 44-47, and 50-54 under 35 U.S.C. § 112, second paragraph.

Rejection under 35 U.S.C. § 102

Claims 13, 16, 19, 20, 27, 36, and 44-46 stand rejected under 35 U.S.C. § 102(e) as allegedly anticipated by U.S. Patent No. 6,025,180 (the Powell *et al.* patent). The Office asserted that the Powell *et al.* patent discloses a nucleic acid that over its total length of 1862 nucleotides matches SEQ ID NO:1 at 1400 positions. The Office also asserted that the Powell *et al.* patent discloses PCR amplification, and "thus, any primers for the nucleic acid sequence of Powell *et al.* are embraced by claim 36."

Claims 13, 16, 19, 20, 27, and 44-46 also stand rejected under 35 U.S.C. § 102(b) as allegedly anticipated by the Hillier *et al.* reference (GenBank® Accession No. AA056282). The Office asserted that the Hillier *et al.* reference discloses a nucleic acid that over its total length of 618 nucleotides matches SEQ ID NO:1 at 541 positions.

To further prosecution, Applicants have amended claim 13 to recite that the cDNA molecule encodes at least 500 contiguous amino acids of a protein encoded by a polynucleotide comprising SEQ ID NO:1. Similarly, Applicants have amended claims 44 and 46 to recite that the cDNA molecule encodes at least 550 or 600 contiguous amino acids, respectively, of a protein encoded by a polynucleotide comprising SEQ ID NO:1. Neither the Powell *et al.* patent nor the Hillier *et al.* reference discloses a polynucleotide sequence encoding at least 500 contiguous amino acids of a protein encoded by a polynucleotide comprising SEQ ID NO:1. Thus, the cited references do not anticipate present claims 13, 44, or 46.

Applicants also have amended claim 16 to recite that the cDNA comprises a polynucleotide that is at least 1450, at least 1500, at least 1550, or at least 1600 contiguous nucleotides of SEQ ID NO:1. Claims 19 and 27 have been amended in an analogous manner. Claim 36 has been amended to recite a set of primers for amplifying at least 1450 contiguous nucleotides of SEQ ID NO:1. Neither of the cited references discloses a polynucleotide as recited in present claims 16, 19, 27, and 36. For example, neither the Powell *et al.* patent nor the Hillier *et al.* reference discloses a polynucleotide containing at least 1450 contiguous nucleotides of SEQ ID NO:1. Thus, the cited references do not anticipate claims 16, 19, 27, or 45.

In light of the above, Applicants request withdrawal of the rejections of claims 13, 16, 19, 27, and 44-46 under 35 U.S.C. § 102.

Rejections under 35 U.S.C. § 103

Claim 36 stands rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over the Hillier *et al.* reference in view of Applicants' admitted state of the prior art (e.g., page 43, lines 20-22 of the specification). The Office asserted that it would have been obvious for a person of ordinary skill in the art at the time the application was filed to construct primers to hybridize to any portion of the nucleic acid disclosed by Hillier *et al.* in order to make multiple copies of the DNA bounded by the primers for further analysis or production purposes.

Although Applicants disagree, claim 36 has been cancelled without prejudice rendering the present rejection moot.

Claims 39 and 40 stand rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over the Powell *et al.* patent or the Hillier *et al.* reference in view of Applicants' admitted state of the prior art (e.g., page 41, lines 11-23 of the specification). The Office asserted that it would have been obvious for a person of ordinary skill in the art at the time the application was filed to construct arrays containing the nucleic acids or fragments of the nucleic acids disclosed in either the Powell *et al.* patent or the Hillier *et al.* reference in order to detect the nucleic acids in a sample.

To further prosecution, Applicants have amended claim 39 to recite a polynucleotide array comprising at least one single-stranded polynucleotide that is at least 1450, at least 1500, at least 1550, or at least 1600 contiguous nucleotides of SEQ ID NO:1. Neither the Powell *et al.* patent nor the Hillier *et al.* reference teach or suggest an array containing a nucleic acid sequence comprising at least 1450 contiguous nucleotides of SEQ ID NO:1. Further, neither of the cited references provides any motivation to modify the references to arrive at the presently claimed array. Applicants' discussion of the prior art in the specification does not remedy this deficiency. Thus, present claims 39 and 40 are patentable over the combinations of cited references.

In light of the above, Applicants respectfully request withdrawal of the rejection of claims 39 and 40 under 35 U.S.C. § 103.

CONCLUSION

Applicants submit that claims 11-13, 16, 18, 19, 23, 25, 27, 39, 40, 44-47, and 50-59are in condition for allowance, which action is respectfully requested. The Office is invited to telephone the undersigned agent if such would further prosecution.

Please apply any charges or credits to deposit account 06-1050.

Respectfully submitted,

Date: March 22, 2007

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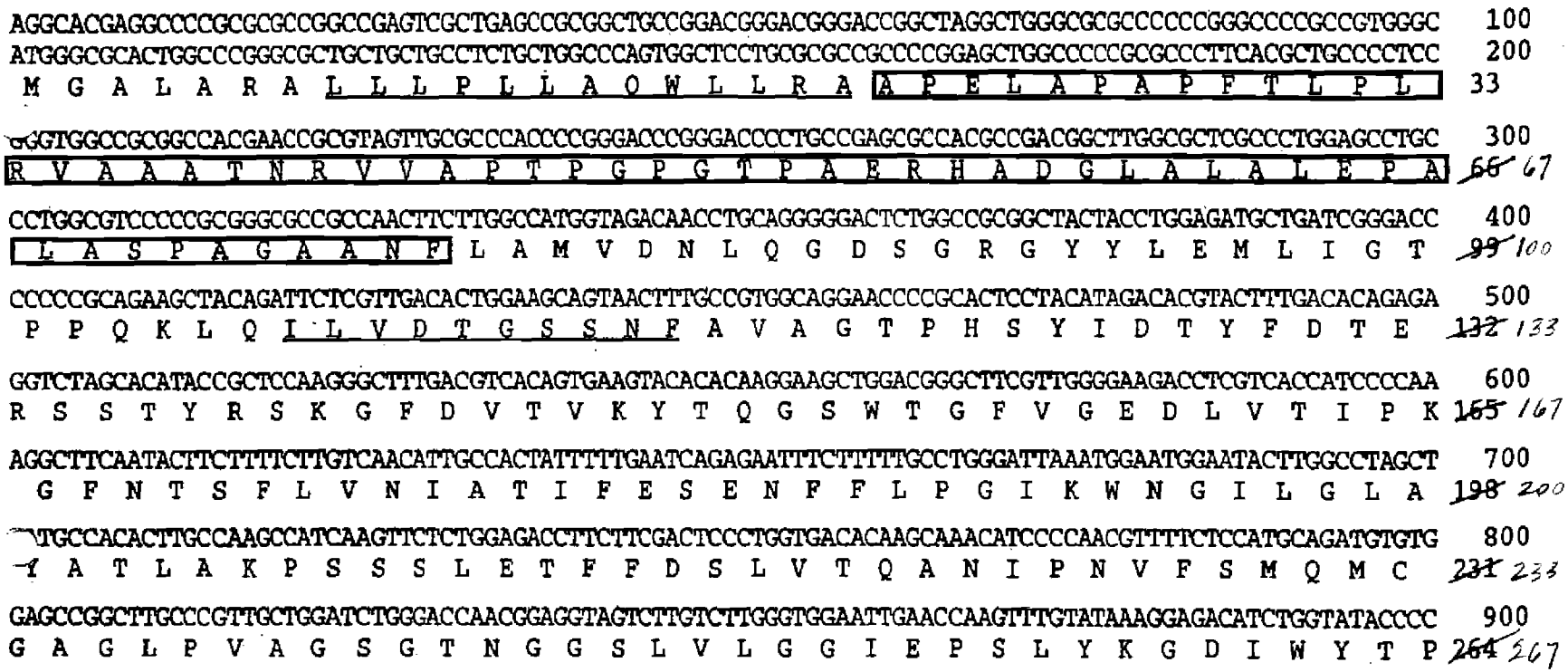
FIG. 2A-1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ATGGGCGCACTGGCCCGGGCGCTGCTGCTGCCTCTGCTGGCCCAGTGGCTCCTGCGCGCCGCCCCGGAGCTGGCCCCCGCGCCCTTCACGCTGCCCCTCC 200
M G A L A R A L L L P L L A Q W L L R A A P E L A P A P F T L P L 33
GGGTGGCCGCGGCCACGAACCGCGTAGTTGCGCCCACCCCGGGACCCGGGACCCCTGCCGAGCGCCACGCCGACGGCTTGGCGCTCGCCCTGGAGCCTGC 300
R V A A A T N R V V A P T P G P G T P A E R H A D G L A L A L E P A 66 67
CCTGGCGTCCCCCGCGGGCGCCGCCAACTTCTTGGCCATGGTAGACAACCTGCAGGGGGACTCTGGCCGCGGCTACTACCTGGAGATGCTGATCGGGACC 400
L A S P A G A A N F L A M V D N L Q G D S G R G Y Y L E M L I G T 99 100
CCCCCGCAGAAGCTACAGATTCTCGTTGACACTGGAAGCAGTAACTTTGCCGTGGCAGGAACCCCGCACTCCTACATAGACACGTACTTTGACACAGAGA 500
P P Q K L Q I L V D T G S S N F A V A G T P H S Y I D T Y F D T E 132 133
GGTCTAGCACATACCGCTCCAAGGGCTTTGACGTCACAGTGAAGTACACACAAGGAAGCTGGACGGGCTTCGTTGGGGAAGACCTCGTCACCATCCCCAA 600
R S S T Y R S K G F D V T V K Y T Q G S W T G F V G E D L V T I P K 165 167
AGGCTTCAATACTTCTTTTCTTGTCAACATTGCCACTATTTTTGAATCAGAGAATTTCTTTTTGCCTGGGATTAAATGGAATGGAATACTTGGCCTAGCT 700
G F N T S F L V N I A T I F E S E N F F L P G I K W N G I L G L A 198 200
TGCCACACTTGCCAAGCCATCAAGTTCTCTGGAGACCTTCTTCGACTCCCTGGTGACACAAGCAAACATCCCCAACGTTTTCTCCATGCAGATGTGTG 800
A T L A K P S S S L E T F F D S L V T Q A N I P N V F S M Q M C 231 233
GAGCCGGCTTGCCCGTTGCTGGATCTGGGACCAACGGAGGTAGTCTTGTCTTGGGTGGAATTGAACCAAGTTTGTATAAAGGAGACATCTGGTATACCCC 900
G A G L P V A G S G T N G G S L V L G G I E P S L Y K G D I W Y T P 264 267

FIG. 2A-2

TATTAAGGAAGAGTGGTACTACCAGATAGAAATTCTGAAATTGGAAATTGGAGGCCAAAGCCTTAATCTGGACTGCAGAGAGTATAACGCAGACAAGGCC 1000
I K E E W Y Y Q I E I L K L E I G G Q S L N L D C R E Y N A D K A 297 300

ATCGTGGACAGTGGCACCACGCTGCTGCGCCTGCCCCAGAAGGTGTTTGATGCGGTGGTGGAAGCTGTGGCCCGCGCATCTCTGATTCCAGAATTCTCTG 1100
T V D S G T T L L R L P Q K V F D A V V E A V A R A S L I P E F S 330 335

ATGGTTTCTGGACTGGGTCCCAGCTGGCGTGCTGGACGAATTCGGAAACACCTTGGTCTTACTTCCCTAAAATCTCCATCTACCTGAGAGATGAGAACTC 1200
D G F W T G S Q L A C W T N S E T P W S Y F P K I S I Y L R D E N S 363 367

CAGCAGGTCATTCCGTATCACAATCCTGCCTCAGCTTTACATTCAGCCCATGATGGGGGCCGGCCTGAATTATGAATGTTACCGATTCGGCATTTCCCCA 1300
S R S F R I T I L P Q L Y I Q P M M G A G L N Y E C Y R F G I S P 396 400

TCCACAAATGCGCTGGTGATCGGTGCCACGGTGATGGAGGGCTTCTACGTCATCTTCGACAGAGCCCAGAAGAGGGTGGGCTTCGCAGCGAGCCCCTGTG 1400
S T N A L V I G A T V M E G F Y V I F D R A Q K R V G F A A S P C 429 433

CAGAAATTGCAGGTGCTGCAGTGTCTGAAATTTCCGGGCCTTTCTCAACAGAGGATGTAGCCAGCAACTGTGTCCCCGCTCAGTCTTTGAGCGAGCCCAT 1500
A E I A G A A V S E I S G P F S T E D V A S N C V P A Q S L S E P I 462 467

TTTGTGGATTGTGTCCTATGCGCTCATGAGCGTCTGTGGAGCCATCCTCCTTGTCTTAATCGTCCTGCTGCTGCTGCCGTTCCGGTGTCAGCGTCGCCCC 1600
L W I V S Y A L M S V C G A I L L V L I V L L L L P F R C Q R R P 495 500

GTGACCCTGAGGTCGTCAATGATGAGTCCTCTCTGGTCAGACATCGCTGGAAATGAATAGCCAGGCCTGACCTCAAGCAACCATGAACTCAGCTATTAA 1700
R D P E V V N D E S S L V R H R W K * 513 518

GAAAATCACATTTCCAGGGCAGCAGCCGGGATCGATGGTGGCGCTTTCTCCTGTGCCCACCCGTCTTCAATCTCTGTTCTGCTCCCAGATGCCTTCTAGA 1800
TTCACTGTCTTTTGATTCTTGATTTTCAAGCTTTCAAATCCTCCCTACTTCCAAG(A)n 1855

FIG. ~~3A~~ 3-1

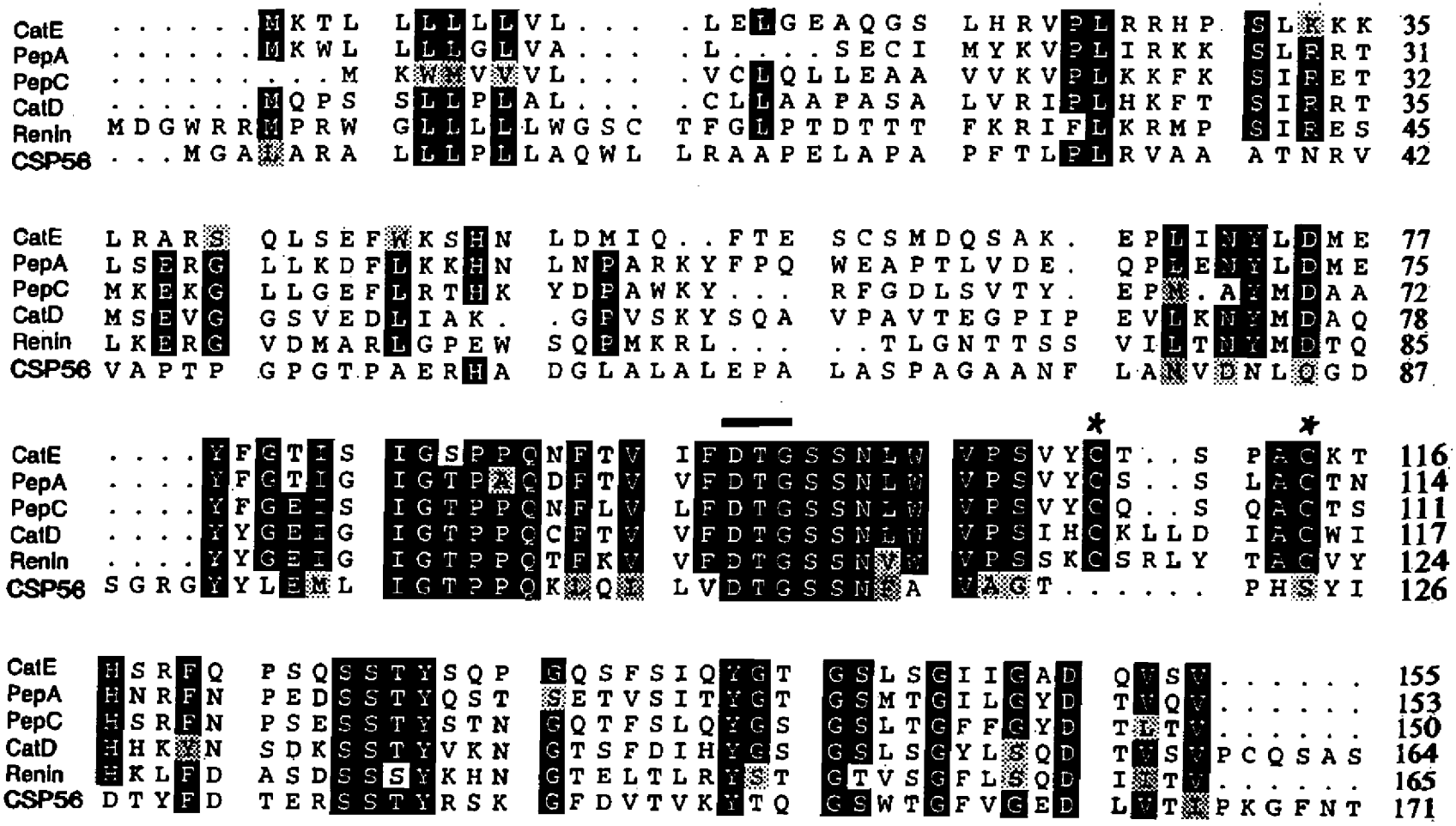
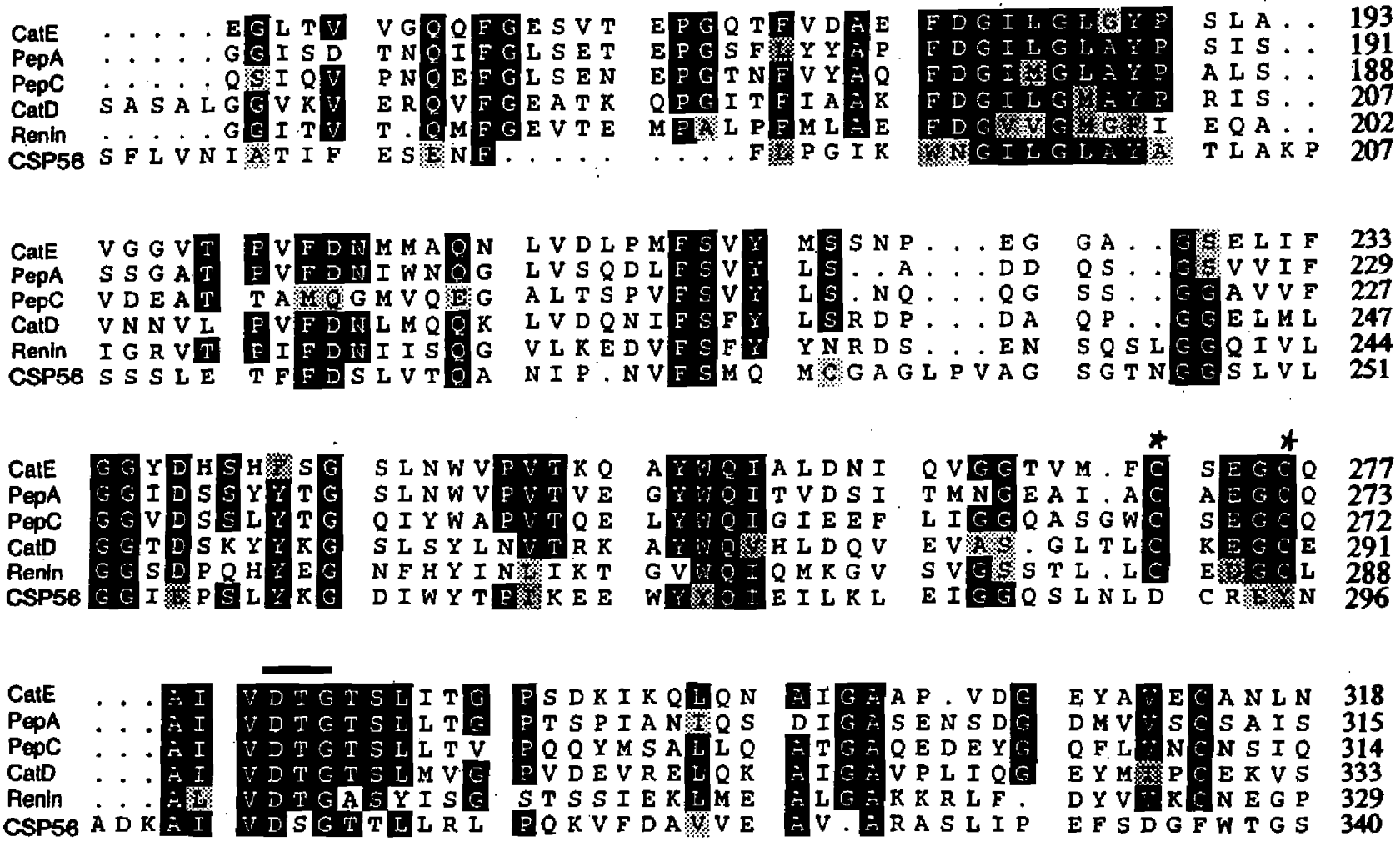


FIG. 3B 3-2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PepA . . . . . G G I S D T N Q I F G L S E T E P G S F Y Y A P F D G I L G L A Y P S I S . . 191
PepC . . . . . Q S I Q V P N Q E F G L S E N E P G T N F V Y A Q F D G I M G L A Y P A L S . . 188
CatD S A S A L G G V K V E R Q V F G E A T K Q P G I T F I A A K F D G I L G M A Y P R I S . . 207
Renin . . . . . G G I T V T . Q M F G E V T E M P A L P F M L A E F D G V V G L G R I E Q A . . 202
CSP56 S F L V N I A T I F E S E N F . . . . . F P G I K H N G I L G L A Y A T L A K P 207
CatE V G G V T P V F D N M M A Q N L V D L P M F S V Y M S S N P . . . E G G A . . G S E L I F 233
PepA S S G A T P V F D N I W N Q G L V S Q D L F S V Y L S . . A . . . D D Q S . . G S V V I F 229
PepC V D E A T T A M Q G M V Q E G A L T S P V F S V Y L S . N Q . . . Q G S S . . G G A V V F 227
CatD V N N V L P V F D N L M Q Q K L V D Q N I F S F Y L S R D P . . . D A Q P . . G G E L M L 247
Renin I G R V T P I F D N I I S Q G V L K E D V F S F Y Y N R D S . . . E N S Q S L G G Q I V L 244
CSP56 S S S L E T F F D S L V T Q A N I P . N V F S M Q M C G A G L P V A G S G T N G G S L V L 251
CatE G G Y D H S H K S G S L N W V P V T K Q A Y W Q I A L D N I Q V G G T V M . F C S E G C Q 277
PepA G G I D S S Y Y T G S L N W V P V T V E G Y W Q I T V D S I T M N G E A I . A C A E G C Q 273
PepC G G V D S S L Y T G Q I Y W A P V T Q E L Y W Q I G I E E F L I G G Q A S G W C S E G C Q 272
CatD G G T D S K Y Y K G S L S Y L N V T R K A I W Q V H L D Q V E V A S . G L T L C K E G C E 291
Renin G G S D P Q H Y E G N F H Y I N L I K T G V W Q I Q M K G V S V G S S T L . L C E D G C L 288
CSP56 G G I S P S L Y K G D I W Y T P I K E E W Y Y Q I E I L K L E I G G Q S L N L D C R E Y N 296
CatE . . . A I V D T G T S L I T G P S D K I K Q L Q N A I G A A P . V D G E Y A V E C A N L N 318
PepA . . . A I V D T G T S L L T G P T S P I A N I Q S D I G A S E N S D G D M V V S C S A I S 315
PepC . . . A I V D T G T S L L T V P Q Q Y M S A L L Q A T G A Q E D E Y G Q F L T N C N S I Q 314
CatD . . . A I V D T G T S L M V G P V D E V R E L Q K A I G A V P L I Q G E Y M I P C E K V S 333
Renin . . . A E V D T G A S Y I S G S T S S I E K L M E A L G A K K R L F . D Y V T K C N E G P 329
CSP56 A D K A I V D S G T T L L R L P Q K V F D A V V E A V . A R A S L I P E F S D G F W T G S 340

FIG. 3C 3-3